NEW PROMPT GAMMA NEUTRON ACTIVATION ANALYSIS FACILITY AT DALAT REACTOR

Hai C. Nguyen¹, Tan H. Vuong², Dien N. Nguyen¹, Son N. Pham¹, Khang D. Pham³, Anh T. Tran¹, Hai X. Nguyen¹

This paper describes the new Prompt Gamma Neutron Activation Analysis (PGNAA) facility and the current activities of nuclear reaction data and nuclear structure group at Dalat research reactor, Vietnam. A new PGNAA facility located at the horizontal channel No. 4 has been designed and is under construction to be changed for the old one. Neutron spectrum at the end of the channel, which near reactor core was determined, and was used as input data for Monte-Carlo simulation. The new facility consists of beam moderator and beam collimator, beam stopper and beam catcher, sample holder, detector shield and biological shield. A new gamma ray spectrometer was used to commute the old one. Some useful parameters of the new facility were determine. The first utilizations of the facility are determination of Ko-factors to use in Prompt Gamma Neutron Activation Analysis technique.

The work has been done under IAEA Project VIE0011-007-008J

Email: nchai@hcm.vnn.vn

¹ Nuclear Research Institute, 1 Nguyen Tu Luc Street, Dalat, Vietnam

² Vietnam Atomic Energy Commission, 59 Ly Thuong Kiet Street, Hanoi, Vietnam

³ Physics Faculty, National University of Hanoi, Vietnam